

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**  
MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0123447

Owner: Associated Electric Cooperative, Inc. (AECI)

Address: P.O. Box 754, Springfield, MO 65801

Continuing Authority: Same as above

Address: Same as above

Facility Name: AECI, Essex Power Plant

Facility Address: 24687 State Highway E, Essex, MO 63846

Legal Description: NW ¼, SW ¼, Sec. 26, T26N, R11E, Stoddard County

Receiving Stream: Unnamed Tributary to Ditch #6 (lower St. Francois River Basin below Wappapello Dam) (08020204-06-02) (U)

**FACILITY DESCRIPTION**

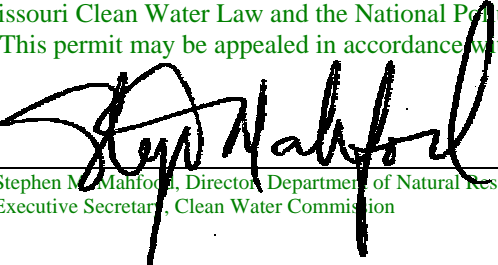
Outfall #001 - Industrial Wastewater/Evaporative Cooling Water - SIC #4911  
Single cell earthen basin with synthetic liner/wastewater irrigation/solids are retained in basin.  
Design flow is 11,338 gallons per day (including stormwater process flows).  
Design flow is 8,928 gallons per day (dry weather process flows).

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

November, 5 1999  
Effective Date

January, 10, 2003  
Revision Date

November, 4 2004  
Expiration Date  
MO 780-0041 (10-93)

  
Stephen M. Mahford, Director, Department of Natural Resources  
Executive Secretary, Clean Water Commission

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Gary L. Gaines, P.E., Director, Southeast Regional Office

IRRIGATION SYSTEM DESIGN:

Outfall #001

The receiving stream watershed is a gaining stream setting.

The facility type is:

No-discharge storage and irrigation system to contain year around flows of wash down water and cooling water.

Storage lagoon surface area of 41993 ft<sup>2</sup> by 7 feet depth at top of berm.

Operating levels of storage lagoon are:

Freeboard of one (1) foot below the top of the berm;

Maximum level of one (1) foot below the top of the berm;

Operating storage capacity between minimum and maximum operating levels is approximately 1,244,054 gallons or 316 days storage including 1-in-10 year stormwater flows. Application rate is based on available land area and average hydraulic loading rate.

Irrigation design flow is 1,438,315 gallons /year including 1-in-10 year average stormwater flows. Application rates are: 0.25 inches/hour; 1 inch/day; 3 inches/week; 6.62 inches/year.

Irrigation site(s) are at total 8 acres.

Irrigation site(s) have field slopes less than 3 percent.

Vegetation grown on the irrigation site is row crops.

Irrigation equipment type is portable pump and gated pipe using a contract applicator.

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 3 of 6	
					PERMIT NUMBER MO-0123447	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u> - Emergency discharge from lagoon (Note 1)						
Flow	MGD	*		*	once/day**	24 hr. estimate
Oil and Grease	mg/L	15		10	once/day**	grab
Total Suspended Solids	mg/L	110		70	once/day**	grab
pH - Units	SU	***		***	once/day**	grab
<u>Outfall #001</u> - Land Application Operational Monitoring (Note 2)						
Lagoon Freeboard	feet	*			once/month	measured
Irrigation Period	hours	*			once/week	total
Volume Irrigated	gallons	*			once/week	total
Application Area	acres	*			once/week	total
Rainfall	inches	*			(Note 4)	total
<u>Irrigated Wastewater</u> (Note 3)						
Chloride, Total	mg/L	*		*	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>April 28, 2003</u> THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

\* Monitoring requirement only.

\*\* Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.

\*\*\* pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.

Note 1 - No-discharge facility requirements. Wastewater shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding the 1-in-10-year 365 day rainfall or the 25- year 24-hour storm event.

Note 2 - Lagoon freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

Note 3 - Wastewater that is irrigated shall be sampled at the irrigation pump or wet well.

Note 4 - The 24 hour period prior to the discharge from the lagoon.

C. SPECIAL CONDITIONS

1. This permit may be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C), and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
  - (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
  - (b) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

2. This permit may be reopened and modified or alternatively revoked and reissued, to incorporate new or modified effluent limitations or other conditions, if the result of a wasteload allocation study, toxicity test, or other information indicates changes are necessary to ensure compliance with Missouri's Water Quality Standards.
3. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

4. Water Quality Standards

- a. Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
- b. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
  - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
  - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
  - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
  - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
  - (5) There shall be no significant human health hazard from incidental contact with the water;
  - (6) There shall be no acute toxicity to livestock or wildlife watering;
  - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
  - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

- 5. Lagoons and earthen basins shall have a liner that is designed, constructed and maintained in accordance with 10 CSR 20-8.020(13)(A)4. If operating records indicate, excessive percolation, the department may require a water balance test in accordance with 10 CSR 20-8.020(16) or other investigations to evaluate adequacy of the lagoon seal. The department may require corrective action as necessary to eliminate excess leakage.

6. Wastewater Irrigation System.

- a. Discharge Reporting Any unauthorized discharge from the lagoon or irrigation system shall be reported to the department as soon as possible but always within 24 hours. Discharge is allowed only as described in the Facility Description and Effluent Limitations sections of this permit.
- b. Irrigation Design Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:
  - (1) No-Discharge System When the Facility Description is "No-Discharge", wastewater must be stored and irrigated at appropriate times. There shall be no-discharge from the storage lagoon except due to precipitation exceeding either the 1-in-10 year rainfall event for the design storage period or the 25-year-24-hour rainfall event.
  - (2) Partial Irrigation System When the Facility Description is "Partial Irrigation" or combined irrigation and discharge, wastewater will be irrigated when feasible and discharges are allowed as specifically authorized under the Effluent Limitations and Monitoring Requirements in Section A of this permit.

C. SPECIAL CONDITIONS (continued)

7. Wastewater Irrigation System (continued)

- c. Lagoon Operating Levels - No-discharge Systems The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to exceedances of the 1-in-10 year or 25-year-24 hour storm events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered of accumulated wastewater to the minimum operating level prior to each winter by November 30.
  - d. General Irrigation Requirements The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during daylight hours. The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
  - e. Saturated/Frozen Conditions There shall be no irrigation during frozen, snow covered, or saturated soil conditions. There shall be no irrigation on days when more than 0.2 inch of precipitation is received or when there is observation by operator of an imminent or impending rainfall event.
  - f. Buffer Zones There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling.
8. As requested by Section 5.00 on Form I, an initial soil sampling must be performed by June 30, 1999 or prior to land application of wastewater for Organic Nitrogen as Ammonia Nitrogen as N, Nitrate Nitrogen as N, Phosphorus as P (Bray 1P), Exchangeable Sodium %, Percent Organic Matter, Cation Exchange Capacity, and pH in order to establish baseline information on the land application area.